

W6NL 40m Moxon Yagi

Designed & Built 2003

Dave Leeson, W6NL



W6NL 40m 2el Moxon Yagi

W6NL 40m Moxon Yagi

- Gain 6 dBi free space, 11 dBi @ 70 ft.
- SWR <1.3:1, 7.0-7.3 MHz
- F/B 20 dB, reflector 2 el.
- Efficiency >99%
- Feed Direct 50Ω
- Size 75 lb, elements 52 ft, boom 27 ft
- Wind 125 mi/h
- Modeled AO6, K6STI

A Moxon Rectangle

- Looks like a loaded Yagi (Create AF40, F12)
- But it's not, it's also a Moxon Rectangle
 - Higher F/B
 - Wider bandwidth
 - Scale to other bands, interleave promising
- Transverse tip elements have 4 functions
 - Moxon coupling
 - Physically balanced
 - Efficient capacitive loading
 - Low wind load on main elements

The diagram illustrates the evolution of a Moxon detector geometry through three stages, connected by downward-pointing arrows. The top stage is a simple rectangle. The middle stage is an extended-tip rectangle, where the top horizontal line is shorter than the bottom horizontal line, and vertical lines extend downwards from the top corners. The bottom stage is a combination of balanced and tip-loaded Moxon, where the top horizontal line is shorter than the bottom horizontal line, and vertical lines extend both upwards and downwards from the top corners.

MOXON RECTANGLE



EXTENDED-TIP MOXON RECTANGLE

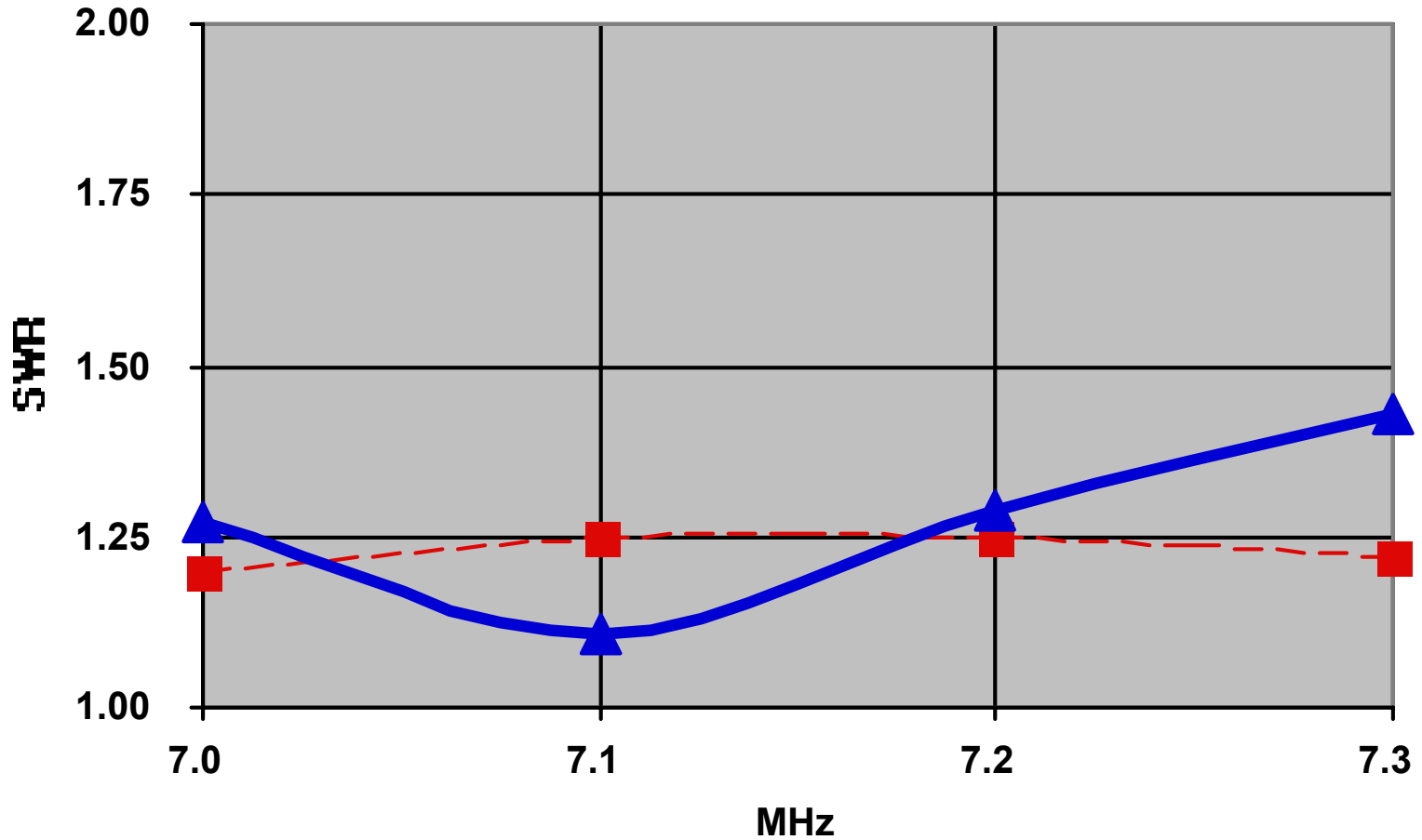


**COMBINATION: BALANCED
TIP-LOADED MOXON**

Bandwidth, Pattern Comparisons

- SWR, Gain, F/B over full band
- Azimuth, elevation patterns show high F/B
- Pattern same as HC8 full-size 3 el on 30' boom
 - 2 el 40 40T227GP vs. HC8 3 el 40330HCG
- Gain 1.5 dB down re K3LR 4 el on 50' boom

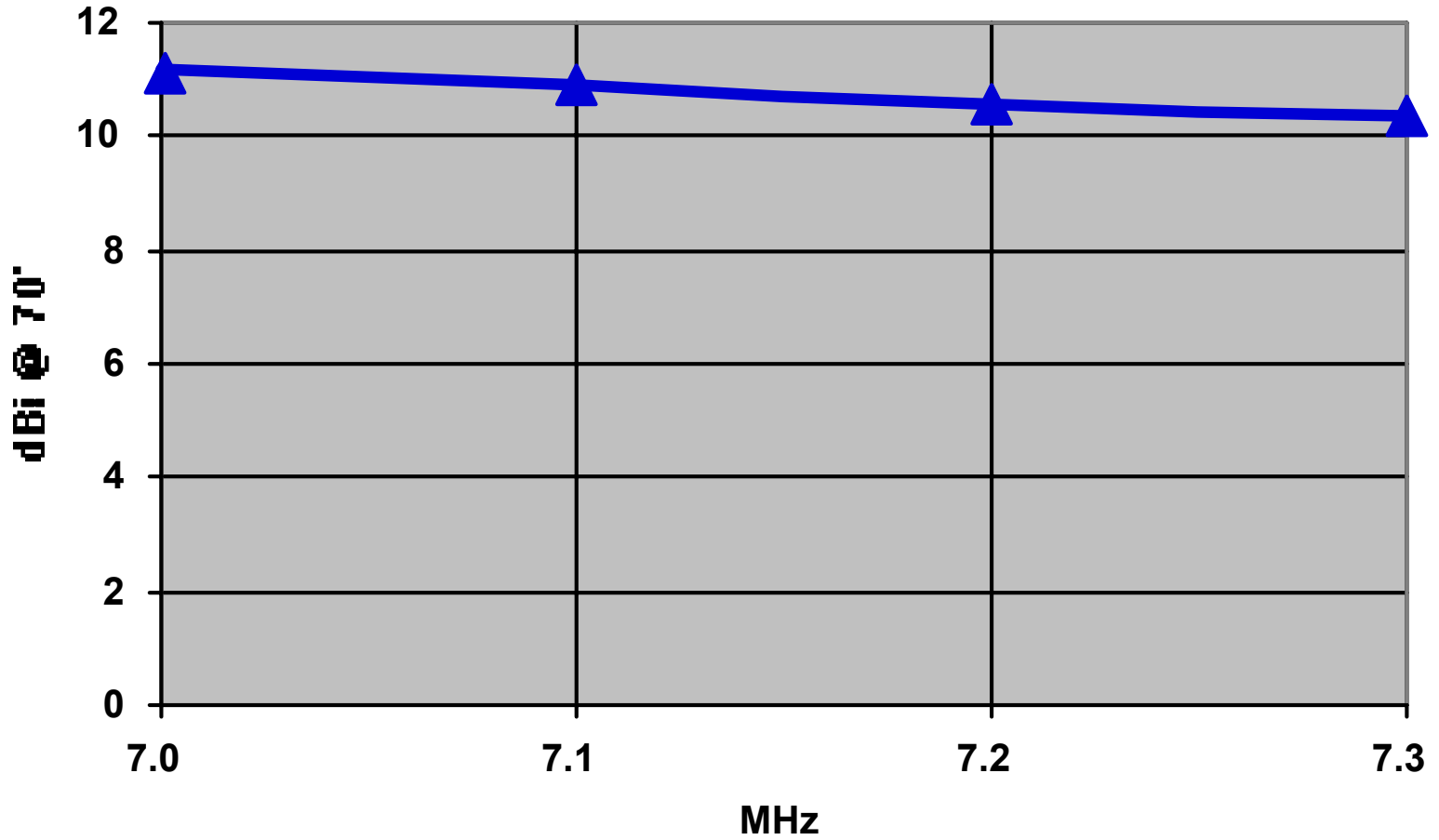
W6NL 40 SWR



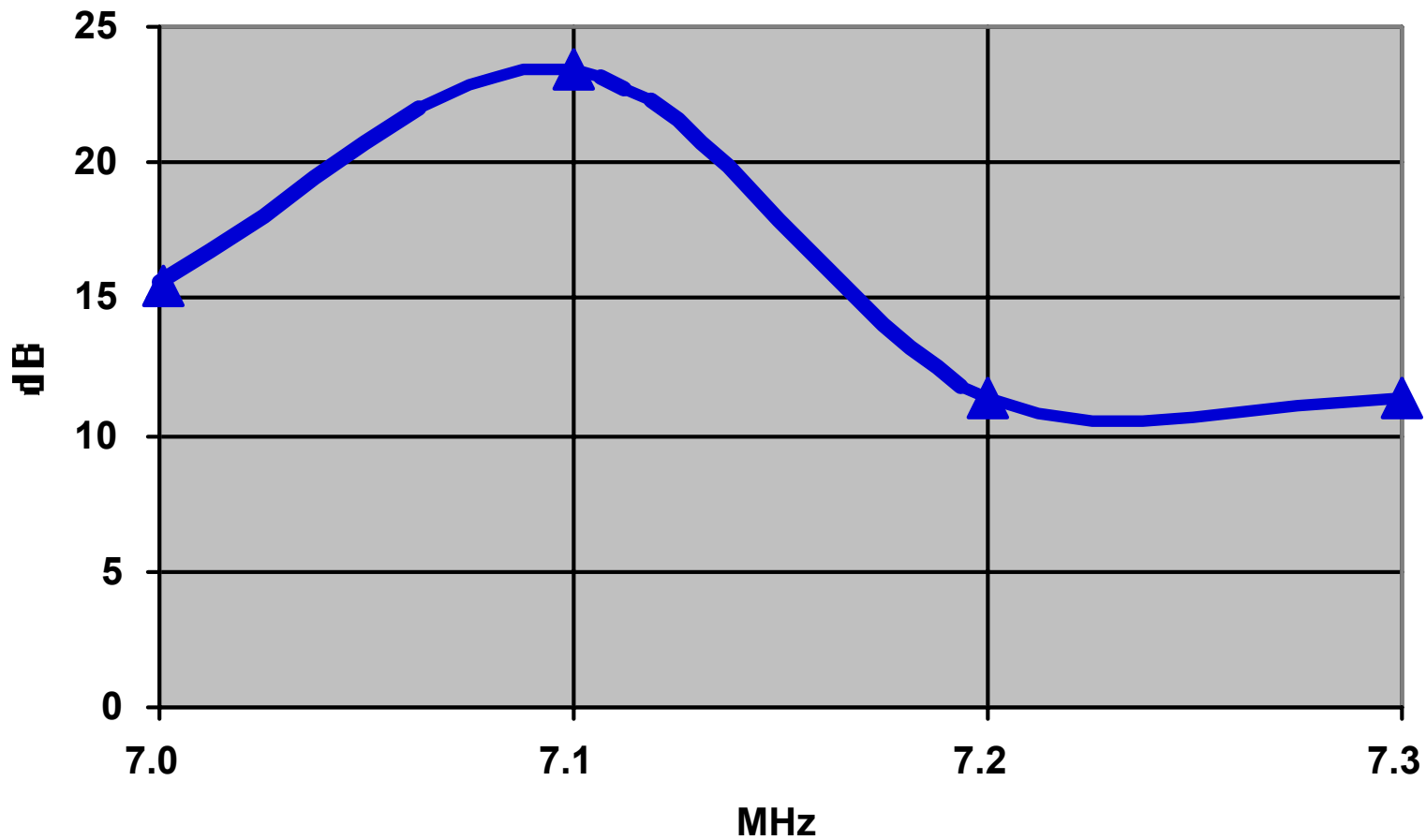
---■--- Measured

—▲— Calculated

W6NL 40 Gain

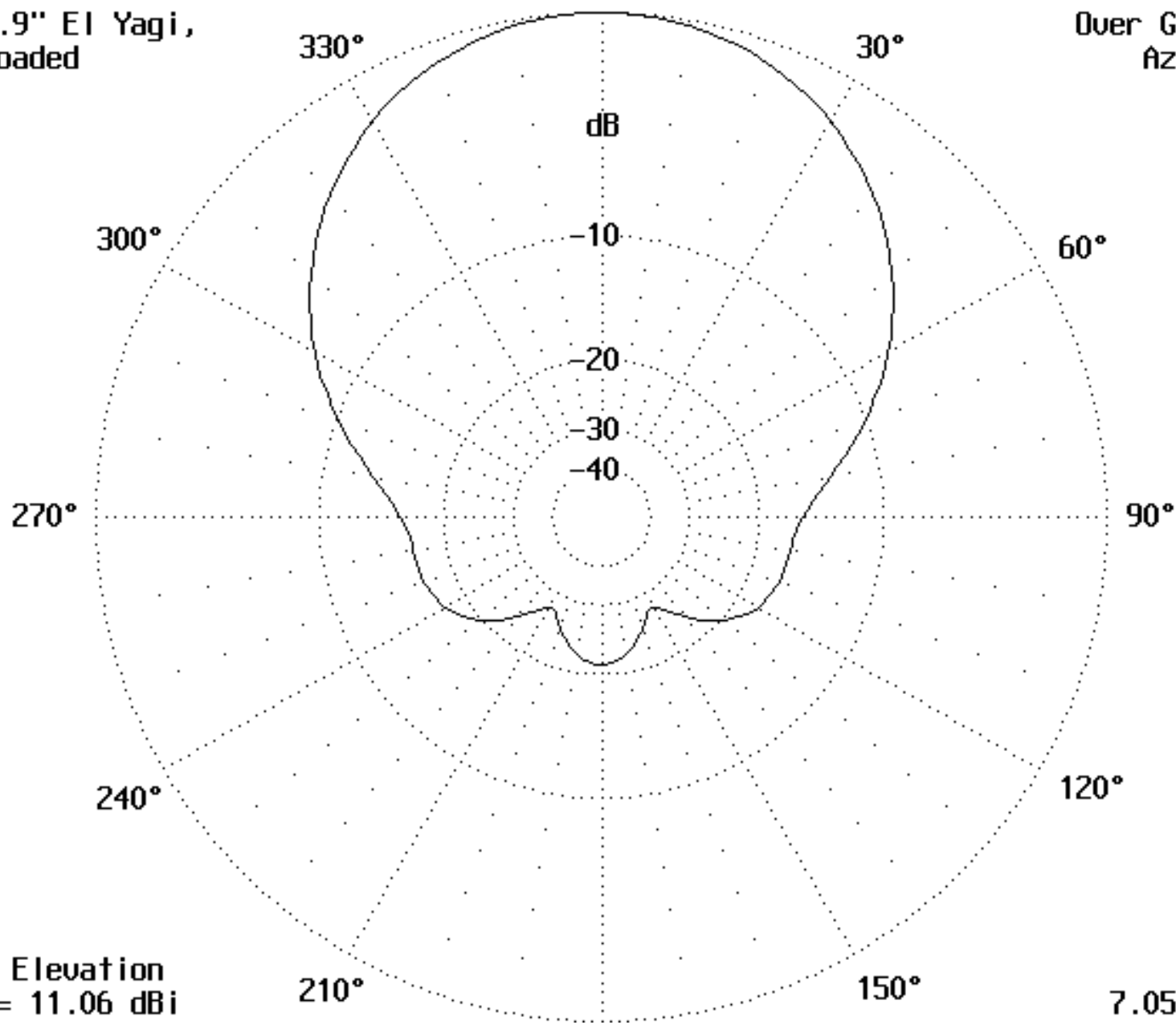


W6NL 40 F/B



40m 1.9" El Yagi,
Tee Loaded

Over Ground
Azimuth

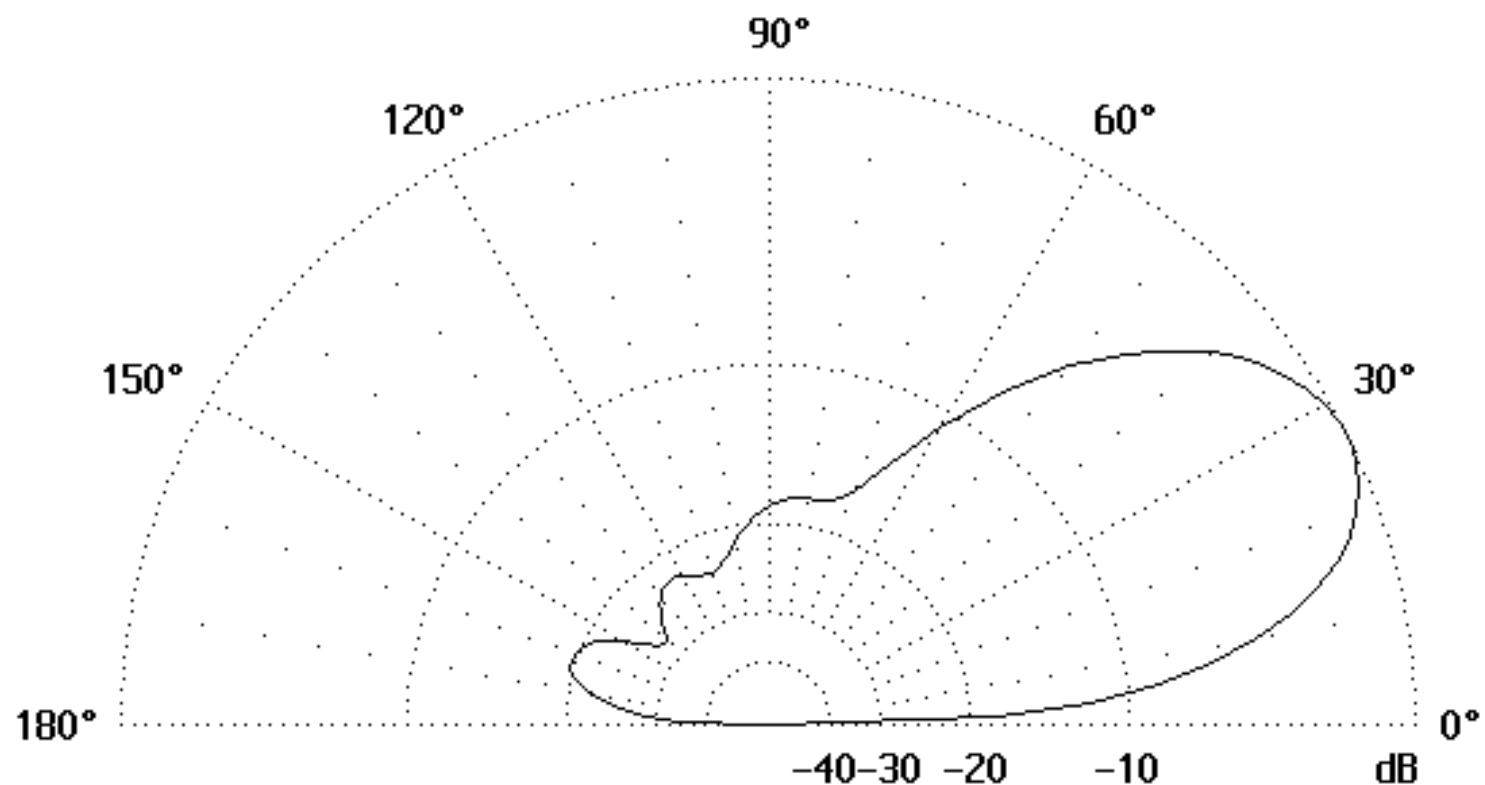


26.0° Elevation
0 dB = 11.06 dBi

7.050 MHz

40m 1.9" El Yagi,
Tee Loaded

Over Ground



Elevation

0 dB = 11.06 dBi

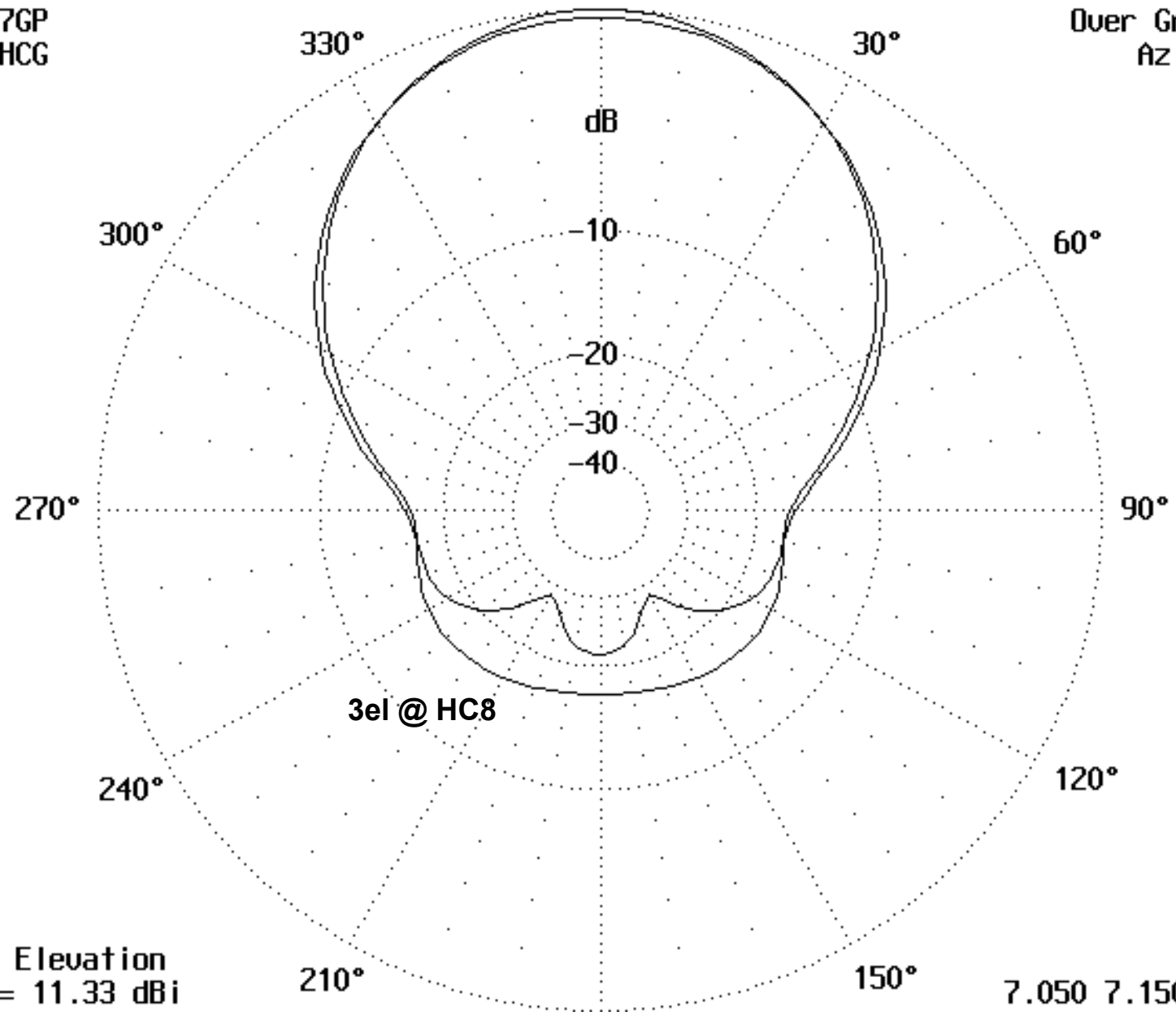
7.050 MHz



W6NL 3el 40m Yagi @ HC8

40T227GP
40330HCG

Over Ground
Azimuth

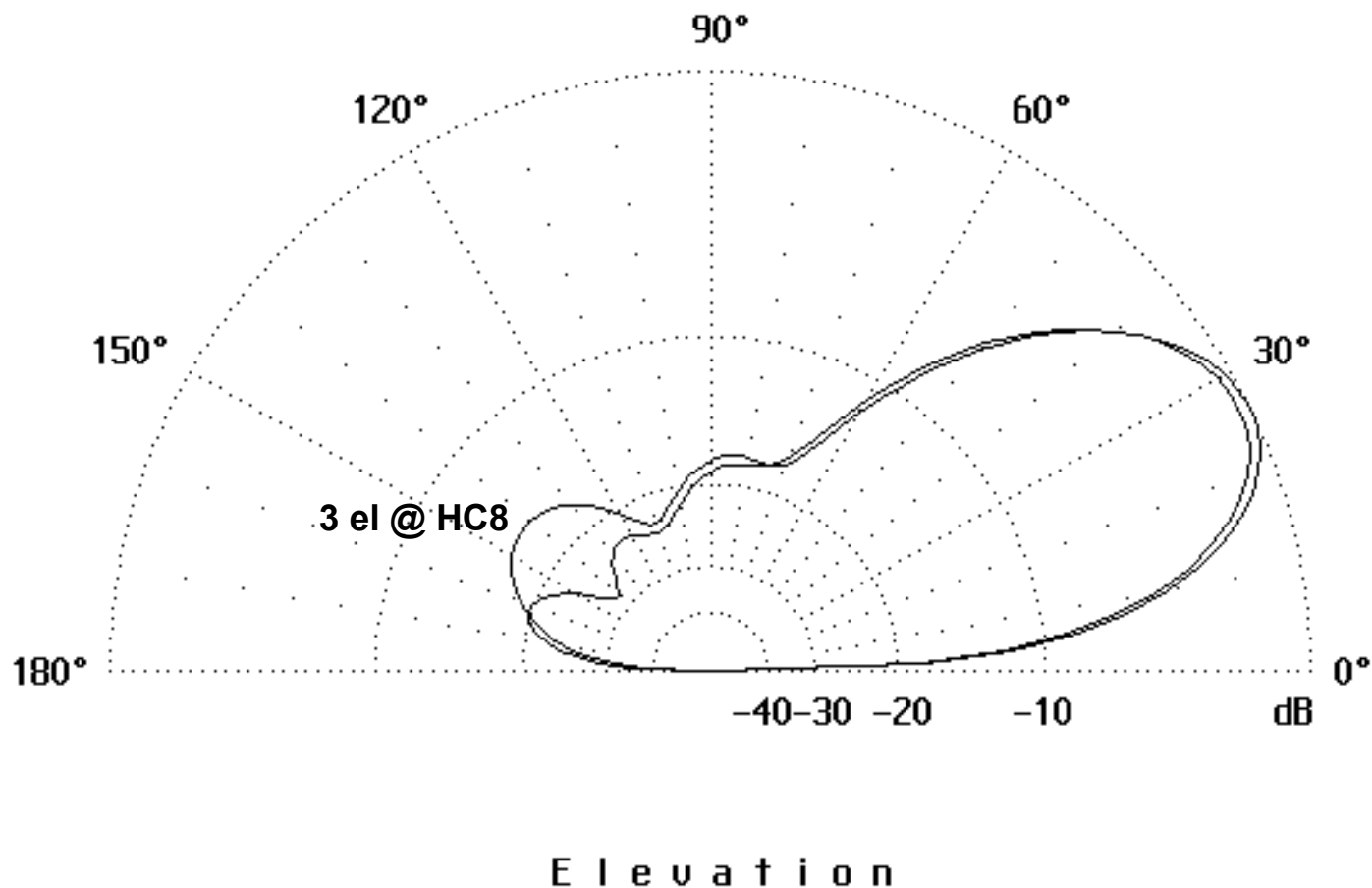


26.0° Elevation
0 dB = 11.33 dBi

7.050 7.150 MHz

40T227GP
40330HCG

Over Ground



0 dB = 11.33 dBi

7.050 7.150 MHz

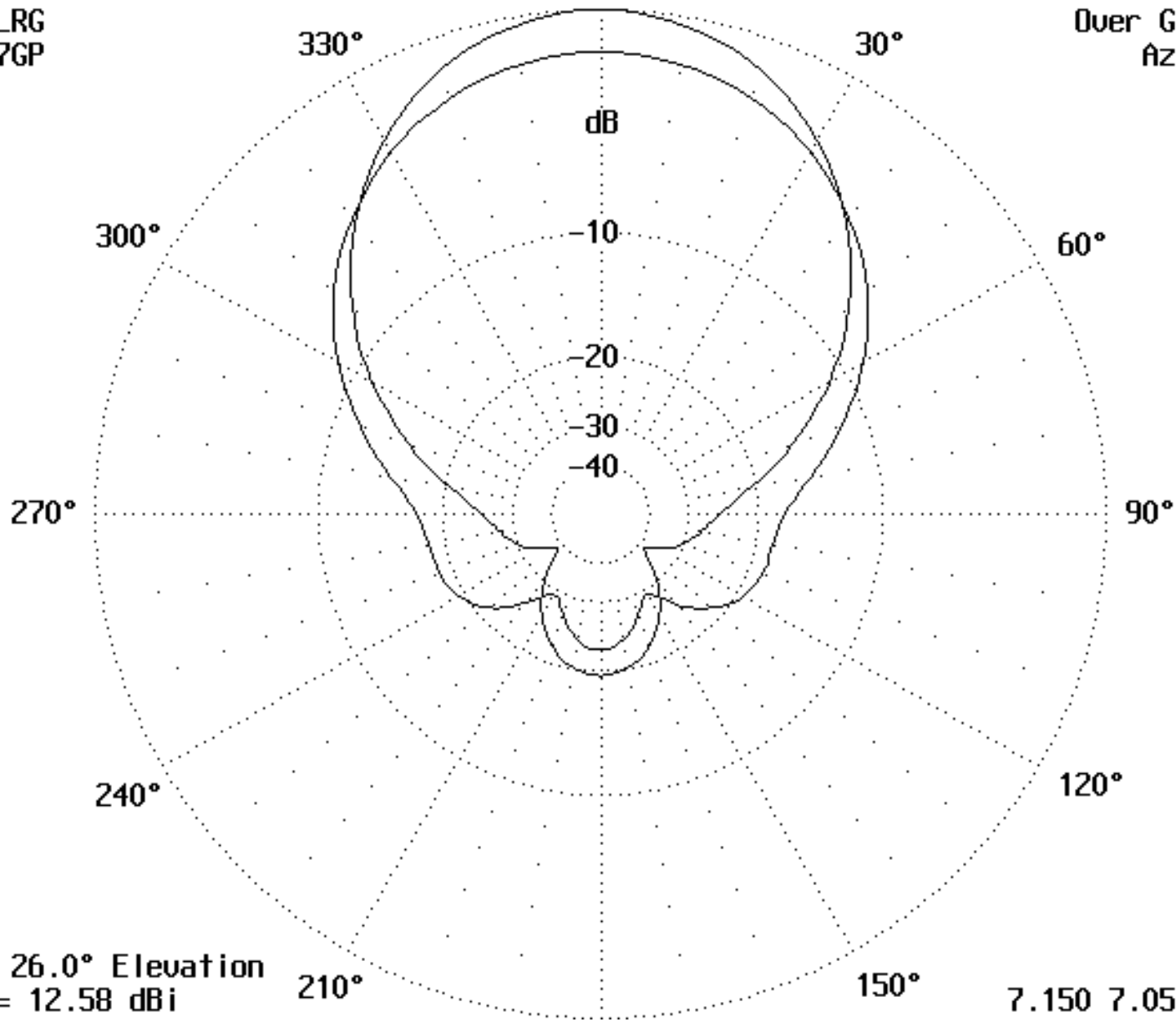


K3LR 4el 40m Yagis

4el 47' boom K3LR

40447LRG
40T227GP

Over Ground
Azimuth

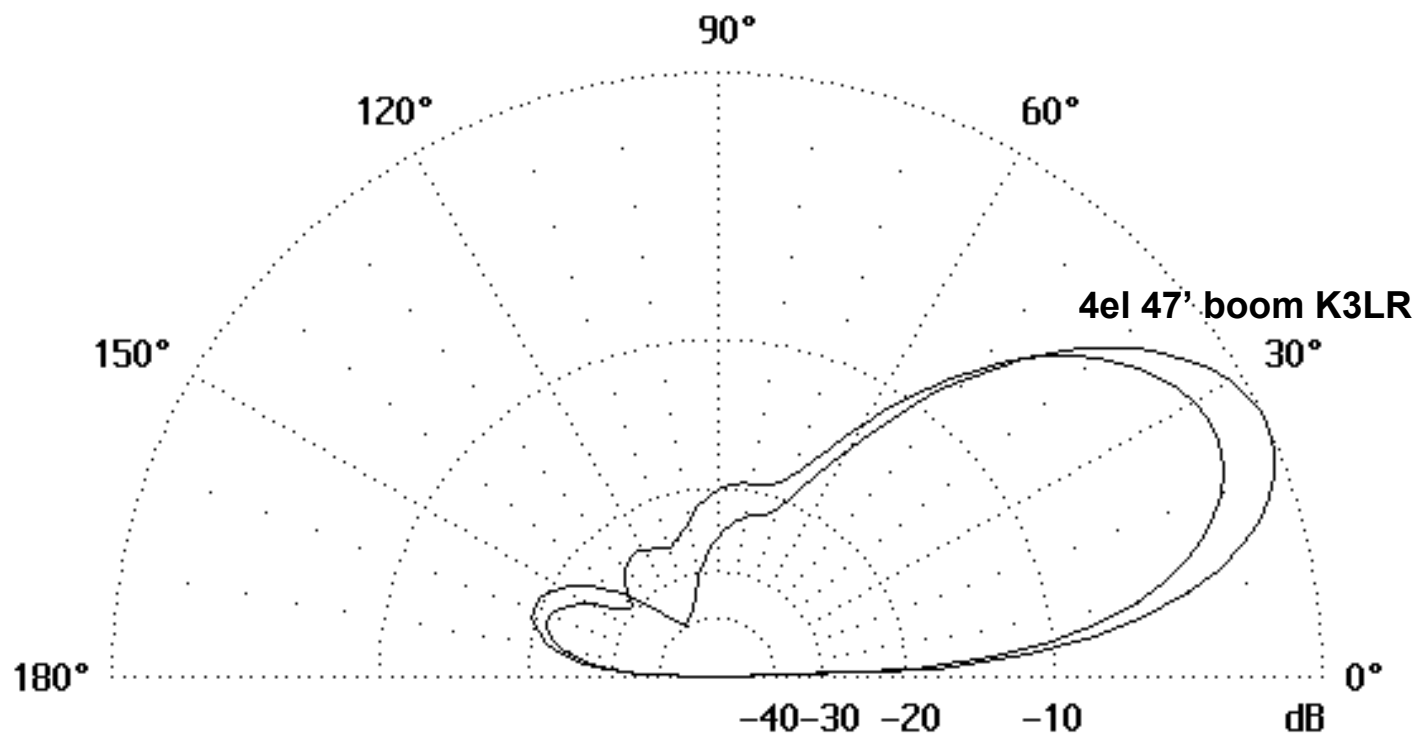


24.0° 26.0° Elevation
0 dB = 12.58 dBi

7.150 7.050 MHz

40447LRG
40T227GP

Over Ground



0 dB = 12.58 dBi

7.150 7.050 MHz

